

REMARKS

Claims 1, 117-126, 129, 133-136, 138, 140-141, 147-148, 150-163 and 170-178 were pending, with claims 138, 141, 151 and 176-178 withdrawn from consideration as being drawn to a nonelected species. Upon entry of the present amendment, claims 1, 117-126, 129, 133-136, 138, 140-141, 147-148, 150-163 and 170-175 will be pending with claims 1, 117-126, 129, 133-136, 140, 147-148, 150, 152-163 and 170-175 under consideration.

With this amendment, claim 1 has been amended for clarity. Specifically claim 1 has been amended to require that the modeling and optimizing be done using a suitably programmed computer. Support for this amendment is found in Section 5.1 of the specification beginning on page 25, line 1, as well as Figure 1. With this amendment, claim 176 has been amended to correct a typographical error.

The specification has been amended to include the enclosed Sequence Listing. Applicants respectfully request that the Sequence Listing be entered and made of record in the instant application. The specification has been further amended to correct for typographical errors and to capitalize instances of trademarks set forth in the specification.

Accordingly, no new matter has been entered by way of the amendments to the specification and the claims.

CLAIMS 176 THROUGH 178 SHOULD BE REINSTATED

On page 2 of the Office Action, the Examiner stated that claims 176-178 are dependent from claim 17 and that claim 17 had been previously cancelled. Accordingly, the Examiner withdrew these claims from consideration. Applicants respectfully submit that the dependency of claims 176-178 on claim 17 was a typographical error. In fact, claims 176-178 were intended to depend from claim 175. With this Amendment, Applicants have corrected the dependency of claim 176 so that it now depends from claim 175. Claims 177 and 178 depend from claim 176 and thus, through the amendment of claim 176, likewise ultimately depend on claim 176. Accordingly, Applicants respectfully request that claims 176-178 be reinstated.

SEQUENCE RULE COMPLIANCE

In the Office Action, the Examiner noted that the instant application fails to comply with the requirements of 37 C.F.R. §§ 1.821 through 1.825 because the Examiner was unable

to find a paper copy of the Sequence Listing containing sequences found in the instant application. With this amendment, Applicants respectfully submit a paper copy of the Sequence Listing containing the sequences disclosed in the instant application and a statement under 37 C.F.R. § 1.821(g).

THE OBJECTION TO THE SPECIFICATION SHOULD BE WITHDRAWN

In the Office Action, the Examiner objected to the Specification because certain trademarks were not capitalized. With this amendment Applicants have submitted amendments to the specification in order capitalize instances of trademarks.

In the Office Action, the Examiner objected to the Specification because the sentence bridging pages 74 and 75 is allegedly not grammatically proper and because line 2 of page 75 refers to "Equation 4 below" when, in fact, the equation thereinbelow is Equation 6, not Equation 4. In response, Applicants have amended the specification so that the referenced equation is now Equation 4, not Equation 6.

THE 35 U.S.C. § 101 REJECTION OF CLAIMS 1, 117-126, 129, 133-136, 138, 140-141, 147-148, 150-163 AND 170-175 SHOULD BE WITHDRAWN

On page 4 of the Office Action, the Examiner rejected claims 1, 117-126, 129, 133-136, 138, 140-141, 147-148, 150-163 and 170-175 under 35 U.S.C. § 101 because the claims are directed to non-statutory subject matter. On page 5 of the Office Action, the Examiner stated that this rejection could be overcome by amendment of the claims so that they are either tied to a particular machine or so that they recite and achieve a physical transformation. With this Amendment, Applicants have amended claim 1 to require that the modeling and optimizing be done using a suitably programmed computer. Thus, Applicants submit that claim 1 is patentable under 35 U.S.C. § 101.

Claims 117-126, 129, 133-136, 138, 140-141, 147-148, 150-163 and 170-175 ultimately depend from claim 1 and thus are patentable under 35 U.S.C. § 101 for at least the same reasons. Accordingly, Applicants respectfully request that the 35 U.S.C. § 101 rejection of claims 1, 117-126, 129, 133-136, 138, 140-141, 147-148, 150-163 and 170-175 be withdrawn.

**THE 35 U.S.C. § 112, FIRST PARAGRAPH REJECTION OF CLAIMS 1, 117-126,
129, 133-136, 138, 140-141, 147-148, 150-163 AND 170-175 SHOULD BE
WITHDRAWN**

On page 6 of the Office Action, the Examiner rejected claims 1, 117-126, 129, 133-136, 138, 140-141, 147-148, 150-163 and 170-175 under 35 U.S.C. § 112, first paragraph, because the sequence-activity relationship specified in claim 1, having the form:

$$Y = f(w_1x_1, w_2x_2, \dots w_nx_n)$$

defines x_i as a descriptor of:

“a substitution, a combination of substitutions, or a **principal** component of one or more substitutions, at one or more positions in the plurality of positions” (emphasis added)

whereas cancelled claim 52, which recited the sequence-activity relationship having the same form, defines x_i as a descriptor of:

“a substitution, a combination of substitutions, or a component of one or more substitutions, at one or more positions in the plurality of positions”.

Moreover, the Examiner failed to find support for the description of x_i as a principal component on page 12 of the specification.¹ On this basis, the Examiner asserts that x_i defined as “a principal component” is new matter.

Applicants respond by noting that “a component of one or more substitutions” as set forth on page 12 of the specification is synonymous with the term “principal component.” Moreover, Section 5.1.6, beginning on page 50, line 1, of the specification, makes it clear that principal components can be used in the sequence-activity relationship specified in claim 1. For these reasons, Applicants believe that claims 1, 117-126, 129, 133-136, 138, 140-141, 147-148, 150-163 and 170-175 are fully patentable under 35 U.S.C. § 112, first paragraph.

¹ On page 12 of Applicants’ February 4, 2010 Response to the January 4, 2010 Office Action, Applicants indicated that these claim amendments were supported by page 12, lines 21-29, of the specification as well as claim 52 as originally filed.

CONCLUSION

Applicants respectfully request entry of the foregoing remarks into the file of the above-identified application. If any fees are due in connection with this submission, please charge the required fee to Jones Day Deposit Account No. 50-3013.

Respectfully submitted,

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